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AUTHOR	Strang, Ernest W.
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ABSTRACT

This review was developed by and principally for the National Testing Service (NTS) Dissemination Project Staff. It is one of eight activities being used by NTS to develop a design for an evaluation of the State Capacity Building Program. The review is in two parts. The first part provides background information, evaluation methodologies and activities, a list of "knowns", and a list of relevant readings for each of eleven evaluation domains (e.g., resource base, clients, state practices). This section is preceded by a brief discussion on educational change. The second part is a bibliography with full citations for the works cited in the domain reading lists, and an outline of topics within each of the domains. The first part is primarily for the NTS project staff while the second part could be of value to directors of state capacity building projects and educational researchers and evaluators. (DAG)

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NATIONAL TESTING SERVICE, INC.
1905 Chapel Hill Road
Durham, North Carolina 27707

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BUILDING STATE CAPACITY IN DISSEMINATION: LITERATURE REVIEW

ERNEST W. STRANG

Submitted to:
National Institute of Education
Dissemination and Resources Group
1200 19th Street, N.W.
Washington, D.C. 20208

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BUILDING STATE CAPACITY IN DISSEMINATION: LITERATURE REVIEW

INTRODUCTION TO THE REVIEW

Perhaps the best way to describe what this review is, is to first describe what it is not. It is not meant to be an exhaustive review of the knowledge production and utilization (KPU) process in education or even of the subset most directly concerned with the dissemination (or diffusion) function of the KPU process. One set of reviewers found over 3,000 relevant sources; there are simply not sufficient resources to undertake such a task. In addition, to review "surplus" materials would not further the project's objectives; indeed, it would impede them. One other thing which this review is not, is a major contribution to scholarship in this area. To be sure, rather than breaking new ground, this effort will seek only to map the old.

Purposes Of The Review

Targets: Although this review counts five different target groups in its total audience, the objectives established for this task lead to a focus on only the first of the groups. These five groups, listed in decreasing order of importance are (1) National Testing Service (NTS) Dissemination Project Staff, (2) the Dissemination and Resources Group (DRG) of the National Institute of Education (NIE), (3) Directors and their staffs of the states' Capacity Building Projects, (4) educational research and evaluation specialists, and (5) others interested in the dissemination function in the process of educational KPU. Each of these groups has a different set of interests and varying backgrounds; consequently,

any review has to set target priorities or run the risk of confronting any (or all) of a number of problems--too comprehensive to be read or too succinct to be useful, too abstract or too mundane, too difficult to be understood or too simple to be taken seriously, and so on. Of course merely setting target group priorities is not alone sufficient for avoiding any of those pitfalls. The review must also be focused by setting priorities within the range of reasonable objectives it could serve.

Objectives: Any literature review can be based on one or another (or some combination) of three sets of objectives. The first set consists of general characteristics--whether it should seek to conceptually reorient an extant body of knowledge, whether it should seek to report on a body of knowledge, whether it should try to uncover discrepancies between (among) findings in a particular topical area or whether it should attempt to critique the literature. The second set of possible objectives is concerned with the nature of the literature to be reviewed--should the review focus on theories or findings, descriptions or explanations. The concern of the third set of objectives is to meet the needs of the review's audience; as mentioned above, groups within an audience will have different interests and backgrounds. For example, the DRG may be interested in clarifying conceptual and methodological issues and be capable of understanding the most abstruse presentation while state capacity building project directors may want assistance in program planning and implementation and may have virtually no knowledge of dissemination concepts or methodology (and be relatively uninterested in learning about them unless it will "help now").

The overarching objective set for this task is to inform the development of designs to evaluate the NIE program to cooperate with the states in the development ("building") of state dissemination capacity. To meet this objective, choices have had to be made from among the sets mentioned above. First, this review will not seek to break new ground. A unique conceptual framework will be used to organize the review but not to reorient the field. The focus here is on reporting what is already there in a more "digestible" form. Second, this review will be eclectic. No single "type" of work will be singled out. At the same time, given the overall objective, relevant evaluations will be emphasized. Third, the interests of the NTS staff will take precedence--at least in the body of this review (more on this below). That is, this review will be written to complement the overall design effort.

The NTS Dissemination Design Procedure

The literature review is one of eight different activities being used by NTS to develop a design (or set of designs) for Phase II evaluation of the State Capacity Building Program. The eight activities (illustrated in Figure 1) being used include:

- Reading and interpretation of the Program Announcement
- NIE/NTS meetings
- Familiarization visits to (10) Cohort I States
- Meetings of the NTS Advisory Council
- Workshop Series A
- The PIA Exercise
- Development of the Objectives Checklist
- Literature Review

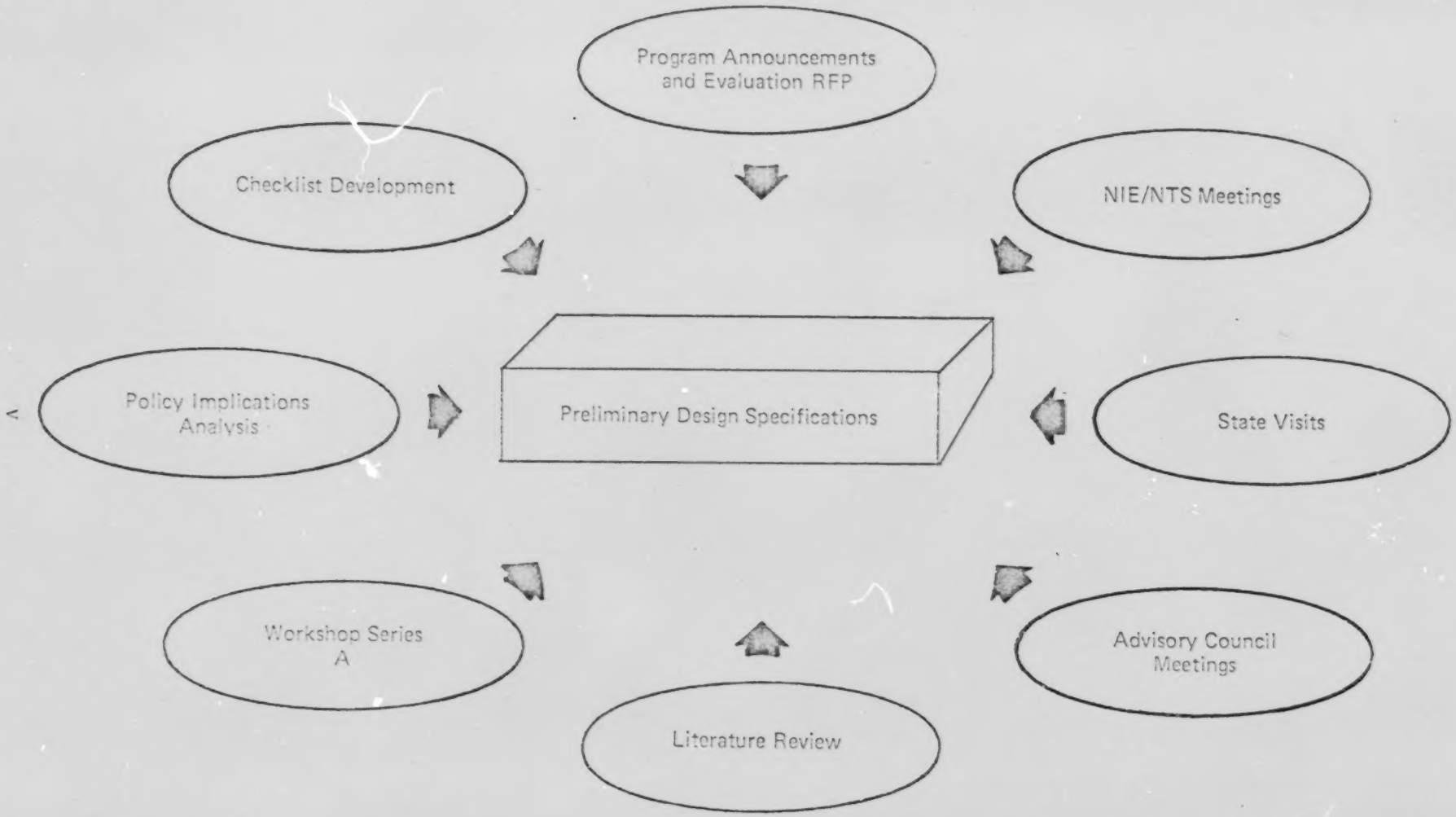

Figure 1 Eight Activities Contributing to Preliminary Design Specifications

As one of eight different activities, this review has a dual task. Beyond informing the design process, the review will also seek to provide support for the other design activities.

Format of The Review

This review consists of two separate but related products. The first consists of eleven sections with each providing background information, evaluation methodologies and activities, a list of "knowns," and a list of the most relevant readings for each of the domains selected to organize the evaluation questions. These domains are:

- Legislative Mandate/NIE Grant Award Process
- State Project Organization
- Ongoing NIE/SEA Relationships
- Coordination and extra project influence
- Institutionalization
- Resource Base Characteristics
- Linkage Characteristics
- State Evaluation Practices
- Client Characteristics
- Users versus Non-Users
- User Satisfaction and Information Utilization

Each of these sections taken alone will provide material to inform design decisions within the appropriate domain; taken together, the eleven sections serve as a guide to inter-domain evaluation questions. These eleven sections are preceded by a brief introductory discussion of educational change.

The second product consists of a bibliography (with full citations for the works cited in the domain reading lists) and

an outline of topics within each of the domains. In addition, each entry on the outline will be followed by a list of relevant citations.

As the first product is most useful to the NTS project staff and, to a lesser extent, the DRG; the second product could prove of value to directors of state capacity building projects, educational researchers and evaluators, and others with an interest in the field. If the reader's particular interest is included on the outline, then she/he will have citations to provide starting material for further pursuit.

INTRODUCTION: MODELS OF EDUCATIONAL CHANGE

During the 1960s, educational practitioners, administrators, developers and researchers found themselves confronted by a dilemma. Millions upon millions were being spent for educational research and development but the results of the efforts were, at best, being sporadically used in the classroom. Recognizing this dysfunction led to two related efforts -- to improve the flow of R&D products to practitioners and to gain a more complete grasp of the process of educational knowledge production and utilization. It is the latter which is of concern in this introductory section; the former is the underlying subject of the eleven sections which will follow.

Rather than attempting to redo massive tasks of reviewing the literature in this area, this section will focus only on the distinctions among the models which have been suggested by others and on the "knowns" of educational change. For one thing, the material is simply too voluminous to be reviewed in its entirety with the resources available and, for another, a number of scholars have already ably done so. In particular there have been over ten major efforts to review the body of educational change literature and place its pieces into practical, conceptual, and/or empirical perspectives. The reader who chooses to read further into this fascinating area will be well served by Rogers (1962), Rogers and Shoemaker (1971), Havelock (1969 and 1973), Piele (1975), Louis and Sieber (1976), Sieber (1976), Hall and Alford (1976), and Todd and Kibler (1977). In addition, Guba and Clark (1974), Paulston (1976), Leithwood and Russell (1973, and Dalin (1970) provide useful summaries of the

main topics in this area.

Six different models have been suggested as fundamental to the KPU process, each with its own adherents and critics. These six (described more fully below) include the Problem-Solving model, the Research, Development and Diffusion model, the Social Interaction/Diffusion model, the Linkage model, and the configurational model. Each bases its operations upon a somewhat different set of behavioral assumptions and a somewhat different set of priorities. Nonetheless these models are not mutually exclusive and, with the exception of the last, are quite complementary. They focus on different "levels" of structure, concern themselves with different system processes and, describe what are in effect different "moments" in the overall process. These assumptions and foci relevant to each are summarized below.

SIX MODELS OF EDUCATIONAL CHANGE

The Problem Solving Model

This model focuses primarily on the user; it presumes that users recognize problems but do not have sufficient resources to provide and implement solutions. Consequently, an outside, expert consultant is necessary for assisting the user; but this consultant should not operate independently of the client. In fact, involving the client fully and continually in the solution process is absolutely essential; merely offering a solution is not sufficient. The primary statement of this approach is in Lippitt, et al. (1958) -- the label was supplied by Havelock (1970).

Piele (1975) drawing on Havelock's extensive review and conceptualization effort had the following generalizations, or

"knowns", from this model "tested" by a conference of experts. This list (and those which follow most of the remaining sections) contains those that received general assent.

Change as a Problem-Solving Process

> Diagnosis of system needs must always be an integral part of the process.
> The outside change agent should be nondirective.
> Internal resources (those already existing and easily accessible within the client system itself) should be fully utilized.
> Self-initiated and self-applied innovations will have the strongest user commitment and the best chance of long-term survival.
> Change agents are primarily process consultants and trainers. (Piele, 1975, 12)

In a empirical "test" of this model, McKenzie (1964) found that, in fact, "roughly the same type of change process occurred whether or not an outside Change Agent is present" (Louis & Sieber, 1976, 36). In general, however, this model has not been subjected to enough testing to establish the range of its validity.

Research, Development and Diffusion Model

This model, certainly the most mechanistic of this six, focuses on the R&D establishment in education. The most pervasive assumptions in it are that users are relatively passive and when presented with a "better mousetrap" will tend to adopt it. As a description of the general process of KPU, this model posits a group of researchers who "discover," developers who "engineer and package" and a relatively straightforward delivery system focusing on bringing the product to the awareness of the practitioner.

The name most frequently associated with this approach is Guba (1968) who delineated the need for specialization within the various subprocesses mentioned above. Guba and Clark (1974 and 1975) have

since revised this model extensively; in fact, they have virtually disowned it. (See the discussion of the Configurational Model, below.) The following are the most common generalizations associated with this model:

> Change as a Research, Development, and Diffusion Process
>
> Successful innovation requires formal planning (both short-term and long-term).
> Innovation is more effective if labor is rationally divided according to functions (diagnosis, information retrieval, research, development, and application).
> Effective utilization of complex innovations must be preceded by coherently co-ordinated research, development, and evaluation.
> Innovations are more effective when innovators begin by stating objectives or desired outcomes in behavioral terms.
> Innovation is more effective when evaluation is employed at each step of development, diffusion, and installation.
> Innovation is more effective when it includes analysis of cost-to-benefits ratios of specific alternatives. (Piele, 1975, 13-14.)

Louis and Sieber (1976) suggest that this model may be a relatively good description of the technological KPU process, though it may not be widely applicable in "softer" areas of educational innovation. Further, Essoglou (undated, 1-4) suggests that such a linear model may not be appropriate for technology, either.

The Social Interaction/Diffusion Model

This model, the oldest, traces its roots to the study of adoptions of innovations in agriculture and has been greatly influenced by the extension agent experiences of the USDA. Rogers, who began as a rural sociologist (1958 and-with Shoemaker-1971) has been the chief publicist of this approach. The key concepts include a generalizable flow from "awareness" of an innovation through "interest",

"evaluation," and "trial" to "adoption" of it. The focus here is on the user and the factors which influence him. The following generalizations are characteristic of this model:

Change as a Process of Social Interaction

> Effective dissemination and utilization can be facilitated by informal opinion leaders.
> Adoption of new ideas and practices is strongly influenced by the perceived norms of the user's professional reference group.
> Informal, person to person contact is important in effective dissemination, especially when the user is at the trial stage.
> Individual adoption behavior follows a sequence which includes "initial awareness," interest, evaluation, and trial.
> Users with close proximity to resources are more likely to use them.
> Users usually respond only after repeated inputs from diverse sources; key concepts in diffusion are redundancy, diversity, synchronicity. (Piele, 1975, 14-15)

A number of significant efforts have been made to determine how appropriate this model is in the field of education, at which "stages" personal intervention is most important, and what types of communications are most frequently used in each of the stages. (For an example of this type of research, see Rogers and Beal, 1958.) In general, Louis & Sieber (1976) suggest

> "It would certainly seem advisable for anyone attempting to play the change agent role to familiarize himself with the diffusion studies, since they reveal findings of considerable importance to anyone attempting to work within natural social networks. Nevertheless, because they concentrate on a natural process within a social micro-system, and because they treat only superficially the external and internal influences on adoptions, they do not readily provide models for action." (p.35)

The Linkage Model

Where the Problem Solving model focused on helping users find solutions to problems, the Social Interaction/Diffusion model was primarily concerned with the process by which potential users decide

to adopt and the Research, Development and Diffusion model focused on the knowledge producers, the Linkage Model focuses on the media through which knowledge is transmitted. Although it has appeared in many forms, the central ideas are Havelock's (1970 and others). A linkage agent, usually a person, though other media are not ruled out, serves to connect knowledge producer and practitioner. This connection may be through one or more of three possible roles: solution giver, process helper, and resource linker. These roles correspond respectively to the three models mentioned above. As Havelock's Linkage model is explicitly a synthesis of the others, this is not surprising. The primary assumption this model makes is that there must be a connection between those producing the knowledge and those who would utilize it to improve education; further, this communication must be two-way: producers should know practitioners' needs and practioners should be able to gain information on available products.

> To be truly effective, resource persons must be able to simulate the user's problem-solving process.
> To get help from resource persons or systems, the user must be able to simulate resource system processes--for example, to appreciate research knowledge, he must understand how it is generated and validated.
> Effective utilization requires reciprocal feedback between user and research systems.
> Resource systems need to develop reciprocal and collaborative relationships, not only with a variety of potential users but also with a large diverse group of other resource systems.
> Users need to develop reciprocal and collaborative relations with a variety of resource systems (cosmopoliteness).
> A willingness to listen to new ideas (openess) is an important prerequisite to change. This applies to resource persons and to users. (Piele, 1975,14.)

The model, with its emphasis on two-way linkage between user and producer resource systems, has been the theoretical founda-

tion on which the federal program in state capacity building has been structured and most states have at least cited Havelock in their grant proposals.

The Concerns Based Adoptions Model

This model, proposed by Hall and his associates (1974 and 1975), shares with the Linkage Model most of the assumptions about users, linkers, and producers and the processes interconnecting them. The chief difference is found in the relationship between the linkage agent and the potential adopter. Where Havelock's approach is concerned with "selling" an innovation (somewhat of an overstatement), Hall's model is focused on the need to focus on the level or type of concern of the user. The overarching assumption is that the level of implementation is not so much a function of the innovation as it is a function of the clients' attitudes toward innovation in general and the relevant one in particular.

The same propositions listed under the Linkage Model apply here as well, with the following addition:

> Levels of implementation are not related to intrinsic qualities of the innovation itself but rather to the users own cognitive situation.
> Levels of implementation are directly related to the user's level of concern.

The Configurational Model

The use of the word "model" is somewhat inappropriate here, the authors (Guba and Clark, 1974 and 1975) deliberately use the word "perspective". Indeed they are not offering merely another model in the same tradition of the others, rather they are suggesting a shift in the entire paradigm away from linear, systemic

approaches to a perspective viewing educational KPU as a "community."

The "community paradigm" is considered to be a more faithful representation of the educational KPU world than a systems paradigm. The latter presumes shared goals, formalized interrelationship, and some form of systemic authority. Guba and Clark, however, argue that none of those characteristic's exist. The following are some of their characterizations of the present KPU community:

> The individuals and agencies group themselves together for purposes and functions which are not related primarily to KPU.
> The individuals and agencies do not share a common conception of necessary or desirable KPU outputs and view KPU activity as subordinate.
> The individuals and agencies function essentially independently from one another, have overlapping roles, maintain no binding authority relationships with one another, and share minimal activity relationships. (Guba and Clark, 1975, 8-9).

Definitions of Dissemination and Diffusion

Although virtually every author who uses one or the other of these terms offers a definition (albeit often an implicit one), there tends to be a great deal of overlap. Most refer back to Rogers (1962), Guba (1968), or Havelock (1970) and, as these are somewhat similar, the overlap is to be expected.

The only "study" of these definitions is found in IPOD (1976), the reader is referred to pages 2 and 3 of that report for examples. For the purpose of this essay, the IPOD definition of "dissemination" will be used for "diffusion" as well -- the chief determinant of usage of one or the other often seems to be whether the writer is connected with NIE (dissemination) or USOE (diffusion). The IPOD definition follows:

For the purpose of this report, dissemination is defined as a two-way sharing process:

- for communicating educational needs, problems, solutions, and information among educational practitioners, decision-makers, and knowledge producers; and
- for facilitating rational consideration and the appropriate utilization of the outcomes of research development, effective educational practice, and other knowledge that can be used for the improvement of education.

Several elements of this definition require special emphasis particularly as they relate to the dissemination system within an SEA:

- Two-way sharing process - A dissemination system must allow for and facilitate information flow from local educators to state agency personnel and beyond to the research and development community. Such a system must also allow for and facilitate the more typical information flow from the state to the local level. It must also facilitate communication among LEA's.
- Communicating needs and problems - An important element of an SEA dissemination system is a needs sensing mechanism whereby the priority educational needs of the LEA's are identified.
- Facilitating consideration and utilization - Dissemination involves more than telling; it involves a wide range of communication and technical assistance activities such as consultative services, demonstration, and training.
- Effective educational practice - The products of the practitioner community comprise a part of what is communicated; their usefulness and effectiveness may be equal to the products of the research and development community.
- Improving education - From an SEA perspective, a major part of improving education is to assist local school districts in building a capacity for information seeking and utilization and, on a broader scale, for self-renewal. (IPOD, 1976, 31-32)

The authors of the DAG report (1977) argue that there is little uniformity of definition and that, indeed, developing consensus should be a primary aim of current efforts in the area. To that end, they offer the following four-level "functional" definition.

Level 1: Spread: The one-way casting out of knowledge in all its forms: information, products, ideas and materials, "as though sowing seeds."

Level 2: Exchange: The two-way or multi-way flow of information, products, ideas and materials as to needs, problems, and potential solutions.

Level 3: Choice: The facilitation of rational consideration and selection among those ideas, materials, outcomes of research and development, effective educational practices and other knowledge that can be used for the improvement of education.

Level 4: Implementation: The facilitation of adoption, installation and the ongoing utilization of improvements. (DAG, 1977, 3-4)

I. LEGISLATIVE MANDATE/NIE GRANT AWARD PROCESS

LEGISLATION

As mentioned in the previous section, attention to the dissemination process in education KPU is a relative late-comer to the national arena. But it should be noted that efforts along these lines had begun as early as 1954 and continued sporadically thereafter. It should also be noted, that these efforts were narrowly focused, either to meet the needs of particular groups, such as those involved in vocational education, or to meet a particular national need, such as producing more scientists and engineers in the post-Sputnik period. Not until the passage of the Elementary and Secondary Education Act (ESEA) in 1965 was much attention given to general development and dissemination activities-under Title III and IV.

Table I.1, developed by NIE's Dissemination and Resources Group, highlights the major "mileposts" in this area (DRG, 1976, 3). NIE itself was, in part, created by Congress in 1972 to help meet the need of getting the results of educational R & D efforts into hands of practitioners. The legislature mandate to NIE included the following as the Institute's objectives:

(1) Help to solve or alleviate the problems of, and promote the reform and renewal of, American education;

(2) Advance the practice of education as an art, science, and profession;

TABLE I.1

LEGISLATION AND APPROPRIATIONS FOR EDUCATIONAL R&D, 1954-1974

1954 Cooperative Research Act establishes Federal role in educational R&D.

Late 50's NSF begins R&D activity (accelerated by Sputnik after 1958) in science education.

1958 National Defense Act

- Title VI: Language development including R&D provision.
- Title VII: R&D and dissemination on new educational media.

1961 Under Cooperative Research authorizations: curriculum improvement in English, language arts, and social sciences.

1963 Vocational Education Act: development of projects to help students prepare for post-secondary careers.

Handicapped Education Act: research, development, and demonstration provision.

Under the Cooperative Research Act: establishment of the first R&D center program.

1965 ESEA: a variety of educational programs including

- Title I providing educational support to disadvantaged children.
- Title III supporting development and dissemination of new educational methods.
- Title IV creating Educational Laboratories: authroized expanded research, development, dissemination, and training program for education researchers.

Higher Education Act: research on libraries and information services.

1967 Education Professions Development Act.

1972 Establishment of NIE as the lead agency in educational R&D.

1974 Experimental projects in OE - discretionary R&D authority for OE apart from major titles.

(3) Strengthen the scientific and technological foundations of education; and

(4) Build an effective educational research and development system.

The reader should not be left with the impression, however, of deep federal commitment to dissemination. Rather the legislative mandate has been underfunded, filled with contradictions, and often has been merely rhetorical. The following statement by the authors of the IPOD Report illustrates these points:

> "A total of 208 dissemination requirements were identifed in the legislation and program regulations with 54 agents or agencies assigned responsibility for these activities (18)."

This analysis has convinced the authors that the plethora of federal laws and regulations governing program development, educational research and development, and the dissemination of the results thereof have achieved these net results:

- Designated numerous persons and agencies as responsible agents for dissemination functions without adequately defining that function, and without providing a framework for their cooperative functioning.

- Created the myth that there is an educational research and development system which produces knowledge and which systematically shares such knowledge to improve the quality of educational practice.

- Created a widespread perception that "the system is not producing the results intended."

- Induced Congressional disenchantment with performance of educational agencies.

-Inspired further proliferation of laws and regulations in an attempt to force the desired performance and tightly control executive implementation at federal, state, and local levels.
-Made it extremely difficult for responsible state education agents to plan for and implement a coherent, integrated dissemination system (27).

DISSEMINATION AS A FEDERAL FUNCTION

Despite this "plethora" (or perhaps because of it) the Dissemination Analysis Group (DAG) under the Dissemination Policy Council has offered a number of suggestions for improving the dissemination process. In brief, the DAG report (1977) proposed that seven steps be taken to create an interrelated nationwide system for educational dissemination. These steps include:

1. Establish consistent definitions of dissemination in law and in practice.
2. Establish planning mechanisms at the Federal, national, regional, state, and sub-state levels.
3. Establish administrative mechanisms at the Federal, national, regional, state, and sub-state levels.
4. Initiate widespread training programs.
5. Improve research, development, evaluation, and the collection of descriptive data.
6. Increase financial resources for dissemination, and provide for flexibility of use.
7. Develop a shared nationwide vision of a comprehensive educational dissemination system (ii).

In addition, the authors of the DAG Report emphasize the need for planning and coordinating functions at the federal level "to insure that the separate dissemination activities within agencies and between OE and NIE fit

together in support of an interrelated nationwide system (1977, ii).

NIE's Dissemination and Resources Group has focused its efforts in four areas: (1) research on the knowledge producing and using system; (2) assuring access to knowledge resources; (3) building capacity in the education system; and (4) strengthening linkages between R & D and practice. These efforts are taking place through a number of different activities, e.g., improving ERIC, sensing information needs, developing the R & D utilization program, and continuing the State Dissemination Capacity Building Program (DRG, 1976, 13-25).

At OE, the primary efforts in this area revolve around the National Diffusion Network (NDN) established in 1974 with contingency funds and developing its procedures as needs arose. The following "overview" of this program was developed by Emrick (1976):

> In 1974 the U.S. Office of Education (USOE) established under the Elementary and Secondary Education Act, Title III, Section 306, a federal/state/local network of agencies to interact in specified ways to bring about the sharing of worth while innovative practices. The goal of the National Diffusion Network (NDN) is to encourage the communication of successful ideas, materials, practices, and programs by their developers and the adoption and implementation of these ideas and practices by other educators who determine that specific programs will meet their local needs (iii).

II. STATE PROJECT ORGANIZATION

As little has been written in this area that can be directly related to current Capacity Building Projects, this section is appropriately brief. Related reports on the Pilot State Dissemination Project (Sieber, et al., 1972) and the Nine State Study (Cutter, 1974) although useful, are relatively dated. Further, these reports have had presumably major effects (judging from the projects grant proposals) such that reliance on them would give a misleading indication of current thinking. The Interstate Project on Dissemination Report (IPOD, 1976), on the other hand, has had a major influence on the organization of current projects, though only in general ways. Actually, the most relevant document for this topic is the yet-to-be-completed project descriptions of the Cohort I States (NTS, 1977).

Given the above qualifications, the following are the chief conclusions and recommendations of the Sieber and IPOD reports on the predecessors of the current program. The extent to which current projects have indeed implemented these recommendations and, if so, the results of doing so have as yet not been evaluated.

The IPOD recommendations can be summarized fairly briefly--the authors' comments on "internal coordination" follow:

> This activity recognizes that the dissemination system will vary significantly from SEA to SEA, particularly in terms of its organizational structure and personnel. As was pointed out previously, there is no mandate presented here for the development of a "Division" or "Office for Dissemination," even though the need for coordination may best be addressed through such an organization. Rather, such coordination may be accomplished by high level management, using a matrix approach in which staff members have two or more functional responsibilities across two or more objectives which guide not only the day-to-day activities of the system but those which are

directed to special purposes, projects, and the like. Internal coordination is the strategy function, that which determines how the three sets of SEA dissemination resources are to be used for any given objective.

Determination of the strategies to be used by an SEA in promoting improvement in local districts is based largely on its perception of how change actually takes place. Some SEA's rely primarily on regulations, mandates, and guidelines; others often use recommendations and requests.

The effectiveness of the SEA in promoting and assisting implementation of new programs, practices, and knowledge in LEA's is a function of many factors -- local autonomy, the perceived status and authority of the SEA, as well as others. The problem is not one of implementation itself, but of determining what barriers to implementation exist and what resources and actions an SEA might employ to reduce or remove such barriers.

The locus of control for meaningful change will continue to lie in the local school district and in the classroom, regardless of the evolving centralization of certain finance and governance functions. While the SEA might employ a variety of effective linkage resources to bring the LEA and itself closer together, there may be conflicting philosophies which inhibit the effectiveness of outside change strategies, particularly with prepackaged products.

As with any system, management of the dissemination system should evolve in terms of local characteristics, philosophy, and anticipations. Feedback and evaluation activities should be employed in order to adjust the operation of the system for better performance. Clearly stated objectives for each activity facilitate such evaluation as well as the on-going monitoring of the system (48-49).

Sieber and his associates' fifteen recommendations are much more specific, detailing steps and procedures which should be implemented in projects begun following the Pilot State Dissemination Project. An "edited" version of these recommendations follows:

(1) A statewide dissemination-extension project should be instituted as a separate office with its own clearcut identity in the State Education Agency. If an active research and development division already exists in the agency, the project should be located therein. Otherwise, an attempt should be made to locate it within the division

of curriculum and instruction where it may serve as a seed bed for a wider research and development program within the agency.

(2) Before beginning the project, it is important to formulate goals at three levels: outcomes, which reflect the overall desired impact of the project on educational policies and practices within the state; tactical goals, which specify techniques of retrieval and field agent work; and strategy goals, which relate general goals to tactics. Goals at all three levels should be formulated for each of the three elements of the project: management, retrieval, and field agentry.

(3) Goals should be reassessed informally at every staff meeting, and formally once a year (possibly in the summer) at a staff retreat. All staff members should be included in these sessions.

(4) The management of the project should be shared by (1) a full-time project manager with responsibility for the supervision of retrieval staff and field agents and (2) a part-time project director with responsibility for maintaining liaison with external organizations and SEA officials, providing overall budgetary direction, and reporting to a Deputy Superintendent in the State Agency.

(5) Technical assistance should be provided to the project by the SEA as well as by local sources. It should be the responsibility of the project director to negotiate with the SEA to obtain understanding on the minimum and maximum proportion of time which might be requested of an average consultant during each year.

(6) The central role of SEA specialists should be to provide back-up services for the agents in the field as contrasted with regulatory functions. The service functions of the program should be insulated from the regulatory functions of the agency. Without such insulation, it might be very difficult to ensure local acceptance of the project.

(7) Field agents should be located in intermediate agencies (regional resource centers, intermediate education districts, county offices or larger district offices). They should be identified with these local structures rather than with the SEA.

(8) Staff meetings which include field agents should be held monthly at least. The purpose of such meetings should be to allow personnel to communicate with one another regarding the following issues: problems and successes, future plans and goal modifications, evaluation of activities and output, and training needs.

(9) To facilitate communication and understanding of the project, the full-time manager should visit each agent in the field at least once every two months. Retrieval staff members should also be encouraged to visit the field, especially in the beginning of the project.

(10) To help overcome the communication problems that persist in "dispersed organizations," staff members should be encouraged to communicate by telephone. Accordingly, the project budget should include a large item for telephone bills.

(11) Reporting and evaluation forms should be designed for field agents. These forms should be brief so as not to take too much time, but should include the following information on a day-to-day basis: all contacts with clients (potential or active), how and where the contact was made, a brief summary of what transpired, outcomes, and the amount of time spent on the contact. These forms should be tabulated and analysed on a monthly basis by the project manager and the results fed-back and discussed with the agents.

(12) A university based R&D expert should be commissioned on a retainership basis to perform the following tasks: observe the project overall, provide support and advice to the agents during field visits, serve as informal ombudsman, consult on particular programs within the area of his competency, and serve as liaison with others in the university who might be willing to donate consultation in exchange for certain services or for access to schools for training, research or product development.

(13) The project should maintain contact with Research and Development Centers, Regional Labs, and other organizations doing product development.

(14) The appointment of part-time information personnel in the schools to serve as liaison with the retrieval staff does not create an extension system. Effective stimulation of requests and utilization of research materials at all levels of the educational community depend upon the work of full-time extension agents who are able to perform a variety of functions and who are not identified with traditional roles in the schools.

(15) All project staff should be willing to cooperate fully with independent evaluation teams imposed by federal funding. There should be no excuse for reluctance to provide outside evaluators who are genuinely interested in testing and improving the program with access to personnel and project data. Federal agencies should terminate funding when it appears that the project staff is unreasonably distrustful of evaluation by outsiders (585-588).

III. ONGOING NIE/SEA RELATIONSHIPS

As in the previous section, not too much systematic analysis has been done recently in this area. Unlike the previous section, however, a large amount of effort has been recently expended. Nonetheless, as most of this has been exhortatory, this section will be brief.

Current data summarizing the extent of NIE and SEA relationships can be found in the 1976 Databook (NIE, 1976, 57-64). Tables included there of particular relevance to this design project are: (1) circulation of selected publications concerned with education R&D, (2) Journal articles cited in CIJE and RIE, (3) a list of SEAs receiving NIE grants, the amounts of those grants, and their purposes, and (4) linkage facilities and programs by state.

Four "exhortatory" sources are particularly important here: Sieber (1975), Guba and Clark (1975), IPOD (1976), and DAG (1977). Sieber, offering suggestions for a national educational R&D system, proposes the following:

> An example of a showcase program would be a national educational extension network. This approach appeals very much to practitioners because it is oriented to their immediate needs and involves personal contact with someone who does not pose as an "expert." In addition, it raises awareness of the diversity and riches of educational R&D resources. It has wide coverage, as a single extension agent can reach approximately 300 clients per year. And it has been shown to work very successfully in three states in a thoroughly-evaluated USOE-NIE pilot program. Not only educators generally but R&D personnel as well would profit from an extension system if it were designed to serve as a massive on-going laboratory and a continuous source of information about the needs and reactions of educators to R&D products. (And eventually the system would redound to the benefit of basic inquiry as appreciation rose for R&D output.) Since training materials and programs are available for preparing a national body of extension agents

and information-retrieval personnel in state and regional centers, the time that it would take to install the program would be reduced to a matter of months.

It is my understanding that NIE is currently trying to strengthen the capacity of state agencies to engage in linkage activities. But this "bottom up" strategy, as important as it is, might be too time consuming and produce a highly fragmented system which is impossible to monitor. In view of the potential value and timely relevance of a national extension system, a more aggressive "top-down" strategy might also be considered.

In sum, a showcase program of this kind (similar in visibility to OEO's Headstart) might alleviate many of the political and professional problems that confront the NIE today, and give it much greater connection with our pluralistic educational environment (1975, 93-94).

In a similar vein, though from a different perspective, Guba and Clark also offer suggestions to improve KPU processes. Based on their "configurational" view of the agents and agencies that populate the educational KPU community they call for a fundamental reorientation of current views:

Like it or not, a more realistic conceptual view of educational KPU must be presented to, and acted upon by, those who decide upon national KPU policy. Unless the extant structure of the field is taken into account, and unless the legitimate interests of the individuals and agencies that populate the domain of educational KPU are honored, there will be no significant progress in the development of long-range, effective policies for educational KPU. For it is only by building a strong constituency of such individuals and agencies that new directions can be charted and successfully followed. Such a constituency can emerge and flourish only to the extent to which there exists a conception of educational KPU to which all can subscribe (9).

The authors of IPOD also call for more of a federal/state partnership.

- The federal partners - NIE and USOE - should develop, in cooperation with SEA representatives, a coherent plan for compatible dissemination roles. Effective use of limited resources

can be maximized by eliminating disjointed efforts and unplanned duplication of effort.

- The federal dissemination role most frequently envisioned by the states is one of leadership exercised through planning, technical assistance, and providing incentives such as funds and recognition of SEAs as full partners in the process.

- Together federal and state agencies should set the agenda for research and for programs which seek solutions to educational needs.

- The state education agency has primary responsibility for linking the educational practitioners and the knowledge base.

Finally, the members of DAG also propose a fuller partnership between not only the states and NIE, but also among the multifarious other agencies involved in the public and private sectors. One of DAG's seven recommendations is to "develop a shared nationwide vision of a comprehensive educational dissemination system":

> In order to bring together the various dissemination networks and activities over time, a long-range vision of the future is needed. This vision should lay out as clearly as possible what degrees of autonomy and patterns of coordination ought to be sought optimally at national, regional, state, sub-state, and local levels; what agencies and organizations ought to have which roles; what types of networks or interorganizational relationships are needed; the nature of the skills the personnel must possess; the needed materials; needed financial support; management and coordination mechanisms required; and the processes by which the visionary solution would operate (24).

IV. COORDINATION AND EXTRA PROJECT INFLUENCE

Section II was concerned with project organization in general, this section includes two more specific topics--coordination of the resource base and coordination of the linkages, both in relationship to overall project managment. In addition to the references suggested in Section II, a number of authors have written on these more particularistic topics. This section will first address questions of overall coordination, then move to the narrower areas. It should be noted that internal management of resource bases and linkages will be covered in the appropriate sections of this review (VI and VII, respectively).

To avoid excessive redundancy, the reader is invited to turn to section II for a review of relevant points made by Sieber, et al. (1972) and the IPOD Report (1976). Louis and Sieber (1976) make a number of points about the need for overall coordination:

- There is a good deal of evidence that open and frequently used communication structures are a prerequisite for leadership which commands the allegiance of subordinates and elicits respect for the leader's ability to help solve complex problems. The manager must have access to information from lower levels as well as community downward.
- To gain access to information needed for decision-making, the management develop informal systems of communications.
- There is also a need to develop lateral communication across roles at the same level.

- New organizations require strong leadership:
  - rules and routines are not well-established.
  - lower level employees are likely to be uncertain about task performance and job definitions
  - new situations requiring adaptation are likely to arise frequently (adapted from 156-159).

These points, however, lead to two dilemmas faced by managers in new organizations: First, "there is a need for leadership and influence in order to stabilize the organization's functioning, but the exercise of that leadership is dependent on communication structures which are themselves in a state of uncertainty and flux" (159). Second, "there is a high need for communication in order to monitor the activities of the new role occupant, and to provide him with support in problem solving as he learns his role, but overuse of communication channels will undermine needed autonomy in the boundary spanning role" (160).

Brown (1966) makes similar points from an information flow perspective. The problem for leadership is helping prevent an "overloaded" input system by developing "coding processes" to determine the kind and amount of information that can cross the organization's boundaries (322-323). If unable to do so, the manager must then try to cope with the common organizational responses to overload:

Omission-not processing the information;
Error-processing correctly but not making adjustments;
Queuing-delaying responses during peak periods;
Filtering-systematic omission by prioritizing
Approximation-processing inaccurately;
Multiple Channels-using parallel channels;
Escape-cutting off the information flow (323-324).

All of these problems are amplified as organizational complexity increases and as the range and scope of the organization's functions become more dispersed. The State Capacity Building projects are complex, dispersed, and new organizations.

COORDINATING RESOURCE BASE ACTIVITIES

Brickley and Trohoski (1974), IPOD (1976), and Sieber, et al. (1972) among others have offered numerous experience based suggestions for meshing the activities of the resource base efficiently into the overall project. All have emphasized the need to balance acquisition and access capabilities against demand and against the total resources available to the organization itself.

Brickley and Trohoski concentrate on the availability of resources for resource base operations: "Evaluation issues raised in the search and retrieval operations of a center are those of information resources literature search and support staff such as the library, and interval feedback mechanisms on the search operations and the products" (3). "Existing centers must apply more rigorous program budgeting and cost-analysis techniques in order to provide a management database from which cost-benefit characteristics can be determined" (13).

Authors of the IPOD Report are less concerned with costs than with meeting demand. The state projects must be able to ascertain the expected level and content of demand and plan accordingly.

If the SEA is committed to assisting LEA's in building capacity as defined in this chapter, a major activity of the management component is to monitor the outputs of the needs assessment process in the LEA's to determine what specific resources the dissemination system will need to establish and provide in order to assist the LEA's in addressing those needs. As was previously discussed, the linkage component of the dissemination system can provide assistance to the LEA in needs identification through information and consultation. The needs sensing process should provide information to the SEA about what new products, practices, or information are required by an LEA and what technical assistance, linkage, or incentives might be needed to bring about change or knowledge utilization in the LEA (48).

Sieber, et al., offer a number of recommendations particular to the resource base--to be covered in section VI; one, however, is particularly relevant here and is directed to the recruitment of resource base personnel, a management function:

> The entire range of qualifications and capabilities required by an information retrieval staff should be envisioned in advance, and the staff should consist of at least two professionals. Thus, a project director might consider which skills are essential at the outset, how certain necessary capabilities (for example, computer expertise or familiarity with the potentialities and problems of computerized retrieval) can be provided for the service by outsiders if not by the initial staff, and the advantages that will accrue from a diversification of backgrounds and of qualifications of staff members. Skills should include technical writing (for summaries of research), library use, translation of user language into retrieval parameters, familiarity with educational trends and with local settings, coding of requests for computer searches, and criteria of good research. Strong managerial and human relations skills should be possessed by the retrieval manager (588).

COORDINATING LINKAGES

Piele (1975), IPOD (1976), Sieber, et al. (1972), and Louis and Sieber (1976 are good sources for material on coordinating or managing the activities of the linkage component in a project. It is actually somewhat surprising that more has not been written in this area given the large quantity published on linkage generally.

Louis and Sieber make a number of suggestions appropriate to this topic from the perspective of the innovative nature of the linkage agent role:

> The presence or absence of an organizational mandate with reference to a new role has considerable impact on how the role occupant goes about introducing and shaping his behavior. If the organization is highly supportive, it may use formal authority to publicize and encourage its members to accept the role; alternatively, the organization might proscribe or restrict interaction with the role occupant. Clearly, when the new role is instituted and developed within the organization itself, the former case is far more likely to exist, but where it is thrust, unsolicited, upon the organization, the initial reaction of upper management is more likely to be either neutral or negative.
>
> The structure of the group to be reached will, in part, determine the effectiveness of an organizational mandate in encouraging the acceptance of a new role. In an organization with a decentralized structure, one which stresses individual autonomy and joint decision making, the presence of the organizational mandate might have some impact on the receptivity of subordinates or sub-units, but it will not carry the force of a command backed up with formal sanctions (91-92).

Sieber, et al., besides making a number of suggestions appropriate to internal linkage management, offer two propositions concerning the effectiveness of the organization in supporting the field agent:

(1) In locating the field agent in an agency, care should be taken not to place him in a center which does not have a history of good service relations with local educators;

(2) The organization must not only accept but give strong support to the field agent role, both in terms of gaining access and providing the agents with additional resources (442-443).

The IPOD Report's suggestions are more general, but no less important:

> The SEA dissemination system is, as the definition implies, an interactive one, operating in both initiative and responsive modes. As a leadership organization, the SEA will initiate specific dissemination activities as a way of creating awareness of needs and of alternatives for addressing them. For example, the SEA might have an established priority relating to the use of program budgeting systems in LEA's. This objective may be translated into a regulation or strong recommendation. The dissemination system can support this objective through information, technical assistance, and incentives aimed at motivating the LEA to implement a new planning and budgeting system.
>
> The SEA dissemination system also must be organized to respond to locally identified priorities. Such responses should be provided with all three sets of resources in a form dictated by local needs rather than those of the SEA. It is necessary to develop this responsive role if the SEA is to maintain a partnership relationship with the local districts.
>
> Critical to the needs sensing process is the establishment of an effective and open two-way communication system. The utilization of a variety of linkage resources can help to assure two-way communication. Often, however, the management of the dissemination system will need to establish special channels for bringing about the "collaborative affiliation" which is required for building capacity for improvement in LEA's and for establishing them as partners in the process (48).

Finally, Piele offers a series of propositions concerning the ways management should set up and coordinate linkage "teams":

> To view linking as solely the function of individual agents (or even small teams) ignores the need for support mechanisms to provide the agents with better

linkage to the resource system and with ongoing training and necessary field support.

The need for institutional support for linking agents is apparent even in the notion of linkage; the agent must have access to a resource system to link with the user system. In discussing institutional support, it is also crucial to recognize the importance of utilizing existing linkage activities. A visible approach to developing a comprehensive linking team should be to supplement and work with, not replace or compete with these existing linkage activities found in various organizational settings (53-54).

V. INSTITUTIONALIZATION

Institutionalization is one concept frequently used in discussions of organizational development, especially when the desire exists to make an innovation into a permanent part of a larger organization. Although we commonly speak of "institutions" -- religion, Congress, General Motors, and marriage -- to name just a few that commonly receive that appellation, properly speaking determining whether something is or is not an institution does not rest on a discrete variable. Things are more or less institutionalized; there are no hard and fast rules by which one can discretely partition a set of social organizations into institutions and non-institutions. Further, institutionalization is multi-dimensional; no single criterion suffices for attempts to say even more or less. Finally, as a term "institution" suffers from another handicap. Frequently it is confused by many with "bureaucracy" and, therefore, with rigidity, red tape, impersonality, massive size and other current social stigmata. Probably no concept is completely devoid of affective loadings; nonetheless, the intent here is to use "institution" and its derivative terms as relatively neutral designators.

The problems suggested above become more evident when definitions are examined. Truman (1951) suggests that institutions are those group patterns which are characterized by " a relatively high degree of stability, uniformity, formality, and generality" (p. 26). ("Uniformity" refers to

similar patterns across similar groups; "formality" is the degree of organization; and "generality" implies the pattern is frequent within a [illegible]. None of the descriptors Truman offers are easily operationalized. For example, "stability," seemingly the most measureable, is still many levels away from being a useful yardstick. Further, other authors, especially those influenced by the sociological tradition of Talcott Parsons, Robert Merton or Seymour Lipset, would argue that "stability" however measured is only a valid indicator if the rest of the society is also stable. In fact, they would probably argue that "adaptation" is more important than "stability."

Another and much more complex definition has been suggested by Berger and Luckmann (1967) writing from a sociology of knowledge perspective. For them "institutionalization occurs whenever there is a reciprocal typification of habitualized actions by types of actors" (p.54). More simply, if less elegantly, put this definition implies that institutionalization is a process, that it depends on predictibility of behavior and that the meanings attached to the behaviors are (or can be) shared by those within the institution and by those outside it. The chief element here is the identifiable role; the chief element for Truman is the identifiable group.

Louis and Sieber (1976) offer another definition. Although designed for the restricted case of "developing influence mechanisms between organizations and groups" (p. 54), implicitly, institutionalizing such mechanisms is a function of intensity and initiative of personnel behavior, the

expertise of the staff, and the scope of the overall effort.

Certainly, operationalizing any of these definitions would be difficult. Further, there have been virtually no attempts to do so within the range of works reviewed. However, some general indicators are suggested by the definitions which could prove useful for approximating the level of institutionalization in the capacity building projects:

- Relative permanence as an organization -- e.g., provisions for state funding after the grant period; presence of an authoritatively promulgated policy paper supporting the dissemination effort; non-use of the designator "project."
- Formality of the organization -- e.g., existence of written rules governing behavior within the organization and between those within and others; "titled" roles within the organization that remain constant despite personnel changes; regularity of behavior through time for those in a given position.
- Awareness and acceptance by those outside the organization of the functions being performed by it -- e.g., willingness to have own dissemination function performed by the project; perceived importance of the functions.

- Understanding of the role behaviors performed by those in the project -- e.g., those involved understand (1) what others are doing and (2) how what they themselves are doing fits in; those not involved understand (albeit at a different level) what roles are performed in the project.
- Intensity and initiative -- e.g., efforts to gain support from clients, potential support groups, others within the larger organization; efforts to create awareness among the same groups; efforts to stimulate increased demand.
- Expertise -- e.g., commitment to training and recruitment to well defined role positions existence of, and used, procedures for monitoring behavior within organizational roles.

B. The State Capacity Building Projects as Innovations

With few exceptions, and those themselves of recent vintage, the NIE grant has led to the establishment of new organizations within the extant SEA bureaucracies. In this regard it is important to briefly examine some of the literature on innovations in bureaucracies. Unlike the literature on the process of institutionalization, this area is rich in quantity and quality of insight and analysis. Nonetheless, as this topic also will be addressed in the final section of this review, "User Satisfaction and Information Utilization," only those aspects particularly relevant to innovation in

bureaucracies will be stressed here.

In this area three works are preeminant -- Downs (1967), Crozier (1964), and Rourke (1969). The following discussion borrows heavily from all three as well as the works listed under the general discussion of educational change.

Factors Affecting Innovation in Bureaucracies

Three general classes of variables are significant here: the reactions a given innovation may elicit; process variables such as the complexity of the innovation, the nature of the change agent and his/her relationship to the potential adopters; and the durability (or degree of internalization) required for the change. (Piele 1975 p.6)

Among factors promoting the adoption of innovations in bureaucracies two types are particularly important - the incentives of the individual and the nature of the organization. The third factor - the nature of the innovation itself can be generally subsumed under individual incentives as here it is the perception of the innovation that is important.

Under individual incentives there are three that deserve special consideration. First is the desire of an official to do a good job. Though in our skeptical age it is not common to attribute elevated motives to "bureaucrats", it is nonetheless the case that, other things being equal, most officials probably would adopt innovations that would help them function more ably. This desire can be countered by organizational disincentives or by other individual incentives,

but nonetheless it is presumably often present. Second, the "desire for aggrandizement" may be an incentive to adopt an innovation. Downs suggests that this incentive is so prevalent that it takes on the nature of law: "The Law of Progress through Imperialism" (p.198). "Empire-building" is an oft-noted, if rarely documented, phenomenon in any large organization; to build an empire requires changing the organization. The third individual incentive is reactive -- the desire to innovate in self-defense against pressure from external agents. In this regard, a mandated innovation which changes the jurisdiction or resources vested to a bureaucracy is likely to lead to acceptance merely as a form of self-protection. Of course, such mandates may not lead to the desired change; to be sure and depending on the circumstances, the change in behavior which occurs may actually serve to subvert the mandator's desire.

Among organizational factors that must be considered are the degree of formality, the extent of centralized authority, the size of the organization, and the degree of organizational boundary permeability. "The slowness of movement of large organizations ...(stems from) the fact that a broad and complex pattern of consensus must be developed before change can take place in vast organizational systems in which there may be many centers of power and innumerable points at which divisions may be blocked" (Rourke, 148-149). A factor of particular importance in discussing public organizations is that of "monopoly" power: while private bureaucracies often

have the incentive to innovate to meet and beat the competition, public ones may not have this motivation. The forces of inertia in any organization can be extensive; as the size of an organization increases, these forces probably increase even faster. When large size is coupled with relatively impermeable boundaries (a function of information flow and personnel change) in a public bureaucracy, the adoption of an innovation may indeed be slow. Downs offers the following list of generalizations to be considered in examining innovations: Although these concern "suggesting" innovations, the generalizations would seem to be applicable to "adoption" as well.

"The innovation suggestion rate within a bureau will vary in accordance with the following principles (and their converses):

- The greater the diversity of viewpoints, the more innovations will be suggested, since members will tend to disagree about how bureau functions should be carried out, and will stimulate each others' thinking.
- The greater the rates of change in both the external and the internal technical environment, the higher the innovation suggestion rate, since performance gaps will appear quite frequently.
- The more the internal incentive structure rewards suggestions for innovations, the

more will be made. Such rewards may include prizes, prestige, ability to share in resulting economies, improved chances of promotion, or even just a sympathetic willingness to listen.

- The greater the external pressure for change, the higher the innovation suggestion rate, particularly if "outsiders" customarily interact with bureau members at many levels of hierarchy. Such pressure includes intense functional rivalry with other bureaus.
- The greater the diversity of activities undertaken by the bureau, the higher its innovation suggestion rate, especially if these activities are highly interdependent. Such activities attract diverse bureau members, generate a need for innovations to reduce inconsistencies resulting from "spill-overs," and stimulate specialists in each activity with ideas from the others.
- The more closely the bureau's functions are related to recognized fields of science, the higher the innovation suggestion rate.
- The higher the personnel turnover in the bureau, and the more it tends to fill high-level positions by "importing outsiders" rather than promoting from within, the higher its innovation suggestion rate. Persons entering

the bureau from outside are much more likely to have new ideas and to be unrestrained by informal considerations." (Downs, p. 202).

VI. RESOURCE BASE CHARACTERISTICS

Unlike the preceding sections (with the introducing one being an exception) there is a surfeit of material available here for review. In large measure, most of the works in this area are written for library and information science practitioners and, as such, are somewhat peripheral to the purposes of this review. The reader who wishes to learn more about the more technical aspects of information acquisition, retrieval, and storage is invited to begin with the citations on the outline. A number of less specific materials have been produced as well; these will be the sources used in the remainder of this section.

Probably the most important document produced in the past few years applicable to this design phase is the short article by Brickley and Trohoski (1974) discussing the evaluation of information centers. Sieber, et al., (1972) offer a number of general suggestions based on their study of the pilot program and IPOD (1976), DAG (1977), and DRG (1976) contain relevant information as well.

Brickley and Trohoski suggest evaluating educational information centers across five components of their operations: user needs, information resources (data bases) question negotiation (search and retrieval), impact and utilization, and cost effectiveness. The "style" of the information center is the prime determinant of whether it is important to evaluate the extent to which the information

needs of the users guide the center's operations. If the center concentrates on "broadcast" or selective dissemination of information (SDI) this component is relatively unimportant. If, on the other hand, the center operates in a responsive mode, a user needs study is more necessary. Still, evaluation of this component is viewed as relatively less important than evaluating the others.

> In summary, user needs as an aspect of the evaluation of the information center is limited except that a broad-based user-needs study may suggest categories of information desired by present nonusers and may provide gross measures of the adequacy of information resources (13).

In evaluating the data base, Brickley and Trohoshi suggest that the role of ERIC should be considered preeminent. Other data bases should be evaluated in terms of the "citation counts" and staff discussions used by the center to acquire new data bases. In addition, whether new data bases supplement rather than supplant ERIC, whether the information is an ERIC-compatible format, and whether the new data bases are machine readable are other criteria useful for evaluating this component.

The usual method for evaluating the search and retrieval component is to determine the level of client satisfaction with the product. Unfortunately, no direct relationship necessarily exists between adequacy of process and satisfaction with the product. To be sure, a good question negotiation can so delineate the boundaries of the search that the user ends up being disappointed by the product's lack of bulk.

Process evaluations in this component should consider staff ability and training and the existence and use of quality of the search results.

Trying to evaluate the impact and utilization of the products by the clients is a task filled with difficulties:

> It is difficult to ascertain the relative impact of an information product on decision-making processes and the complex variables that surround a particular educational change. Furthermore, many of the existing centers began and continued their operation as services rather than as change or reform agencies. Indeed, most centers find themselves in a position of having one leg in the change role and one in the service function. Especially with new clients, the information center tends to concentrate on providing information the client wants. If the center is successful, its credibility increases and repeated usage by the client occurs. Furthermore, the client recognizes the value of the service and asks more judgmental questions. While most centers prefer not to select solutions for their users from their available data base, they may provide technical assistance to help clients effectively utilize the information provided (9).

Nonetheless, determining changes in client perceptions of the information service, changes in the client's insights into his/her needs, changes in client attitudes and abilities, and client initiations to improve education are potential indicators in this component.

Attempts to determine the cost-effectiveness of the service are confronted with another series of problems. Chief among these is the lack of "an agreed-upon set of cost factors that can be sifted out of the total operations of the information center" (13).

Sieber and his associates found that four general factors were important in determining the adequacy the services provided by educational information centers. These included the purpose of the request, how well the topic was specified in question negotiation, the role position of the requester, and the medium through which referral takes place (341). Although these factors are "interdomain" in nature, their importance for evaluating the resource base's activities should not be overlooked.

IPOD makes a number of general suggestions that are appropriate here. Each of the activities listed below the "major objective" could be operationalized for evaluatory purposes.

MAJOR OBJECTIVE
-to identify, collect, and prepare information for communication.

ACTIVITIES
-to identify and secure relevant computerized and manually accessed files of educational information, legislation, data, and human resources.
-to design and construct files on national, state, and local effective or promising educational programs and practices.
-to synthesize information and prepare products and services which respond to an identified information need of an individual or group.
-to direct information into relevant national education information files such as ERIC.
-to identify knowledge production needs (37).

INFORMATION RESOURCES

Williams (1975) provides one of the most comprehensive discussions of data base acquisition available. Her criteria include searching methods available to center, content of the data and coverage of necessary information, and lag time between the informations' appearance and its placement in the

data base. Other considerations include the type of "key word" access and the extent of abstracting (562-564). Brickley and Trohoski provide an eminently practical suggestion:

> "(T)he database that yields the most relevant information in the least amount of search time is the one to investigate first" (4).

Good discussions relevant to the range of the contents of an educational resource center can be found in Cooper and Erbes (1975), Knox (1976), the NIE Databook (1976), and Sieber, et al., (1972). Propositions about the relative value of "networks" are presented by Franklin and McDonald (1976), Lynch (1976), and Orgren and Olson (1976).

Two interesting discussions of the relative advantages of manual versus computer searches and the ease of searching particular data bases are found in Keen (1976) and Langley (1976). The latter suggests that traditional manual searches using a library may often be more cost-effective and promote more user satisfaction than mail-access computer search services (231). Dodd's discussion (1976) is also significant in this regard. He suggests that those contracting for searches should be on their guard, fully aware of the problems that may result.

A number of authors have commented upon various facets of information delivery, ranging from the discussion of Bramble, et al., (1976) about the success of satellite transmission to more "down to earth" points made by Sieber, et al., (1972) concerning the merits of providing microfiche or printed copy (247-249), whether the client should pay for copies (249), and how the product should be packaged and

delivered (113-116 and 216-231).

MANAGING THE RESOURCE BASE

As has been frequently the case, the most complete and pragmatic guidelines for implementing and operating a resource base have been suggested by Sieber, et al., (1972) as a result of their observations and analyses of the three states participating in the pilot project. (The eleven recommendations, which follow, have been edited somewhat.)

(1) The entire range of qualifications and capabilities required by an information retrieval staff should be envisioned in advance, and the staff should consist of at least two professionals. Thus, a project director might consider which skills are essential at the outset, how certain necessary capabilities (for example, computer expertise or familiarity with the potentialities and problems of computerized retrieval) can be provided for the service by outsiders if not by the initial staff, and the advantages that will accrue from a diversification of backgrounds and of qualifications of staff members. Skills should include technical writing (for summaries of research), library use, translation of user language into retrieval parameters, familiarity ith educational trends and with local settings, coding of requests for computer searches, and criteria of good research. Strong managerial and human relations skills should be possessed by the retrieval manager.

(2) The record-keeping and filing systems of operational centers should be studied first-hand by personnel establishing a new information service. Basic systems should be outlined in advance and maintained from the outset.

(3) Retrieval centers should adopt a stance of continual reassessment of their modus operandi. A constant balancing of cost factors against the quality of output and service, and of what is feasible with available staff and technology -- these are the basic issues behind questions or whether requests can be answered by manual or by computerized search, and which requests should be serviced by packages and which by individualized searches.

(4) An essential task is the measurement of client satisfaction and utilization of the information, as well as of the technical problems which are encountered in dealing with the information and its degree of relevance. Measurement can be accomplished by sending evauation forms to all first-time users, and to a sample sending evaluation forms to all first-time users, and to a sample of second-time users. These forms should not be sent to clients until about three weeks after they have received information.

(5) An information request form should include data on type of search, purpose of request, nature and amount of information delivered, and special features of the client and his setting.

(6) States should try to develop their own computerized computer-retrieval facility, but not until major problems in management, field activities, and retrieval processes have been ironed out. Thus, arranging for service from a pre-existing computerized retrieval center, usually provided on a regional basis, should be considered an advisable expedient in the first months of the project.

(7) If the retrieval techniques of a new information center are to become more sophisticated and its services more individually tailored, extensive communication between field agents and retrieval specialists is required. Both types of staff members should be familiar with different kinds of searches and their appropriateness for individual clients. Jointly they should attempt to codify information about the clients and his setting which is required for differentiation of service.

(8) Retrieval personnel should screen computer-retrieved information for relevance and quality. This process will not only help the client, but will serve to familiarize the staff with material available on different topics.

(9) The computerized search for abstracts of existing educational knowledge is only the first step toward the real goal of the information service, which is to provide hard copies of research documents, articles or reports (or sections thereof) which would be useful to clients.

(10) The rationale behind packaged information should be well understood. To the extent that packages are used, it should be with full awareness of differences between information supplied on this basis and the aim of individualized service -- differences in approaches to clients, interpretation of the material, and likelihood of being implemented. Packets should be supplied when the purpose or topic of the request clearly call for an existing packet.

(11) An information service that decides to install QUERY should plan to send their computer and retrieval personnel to an installation with a similar computer capacity and set-up in order to study the problems which have been experienced and their solutions (588-590).

VII. LINKAGE CHARACTERISTICS

Linkage, "those activities which relate to a two-way communication or intermediary system, network, or resource which links or provides the clients...with information and incentive resources" (IPOD, 1976, 36), is in many ways the key concept involved in the state dissemination capacity building program. From one perspective, to be sure, the entire program is an effort to develop a linkage between educational knowledge producers found in regional laboratories, universities, foundations, and corporations and the practitioners in the SEA, district curriculum planning offices, the local education agencies and local schools. Usually, of course, the term "linkages" is used more narrowly to refer to the medium through which information is requested from and delivered by a resource base. As such, terms like "linkage" or "extension agent," "non-personalized linkages" or just "linker" are descriptors of the medium. The linker may do far more than merely act as a transmission device, of course, but exactly what is done and why are questions explored more fully below.

LINKAGE ROLES

Models of linkage are plentiful; in fact virtually each conceptualization of educational change includes at least some mention of the function even if not using one of the common labels. This consensual recognition of "function" should not lead to an assumption that various authors see the role of the linker in the same way within the broad bounds offered in the function; they do not. As models of educational change vary in their emphases, so do the corresponding models

of linkage. Piele (1975) provides an adequate and concise comparison of the treatment of linkage within some of the various educational change models. He divides these models into three categories: RD & D type models (including the Research, Development and Diffusion model and the Concerns Based Adoption model), problem solving models (including the Linkage model and the Problem Solving model), and process models (the Social Interaction/Diffusion model). In an RD & D type model the linkage agent is conceived as a "solution giver"; in the problem solving model as a "resource linker"; and in the process models as a "process helper". (Piele, 1975, 20-24; the role terms are based on Havelock, 1970).

LINKAGE ACTIVITIES

In large measure these roles will determine what the linker will be expected to do. Assuming no single model of educational change has been consensually accepted, knowing the model on which a system is based provides an indicator of expected linker behavior. It is unlikely, of course, that the theoretical basis of any state project fits one of the "pure" forms discussed in the introductory section of this essay; nonetheless, tendencies toward one or another model should provide some guidance.

More generally, numerous lists of linker activities have been offered. The most extensive of these was developed by Havelock (1970). His list includes activities (or tactics) for all three of the roles, though his emphases are, of course, on the agent as resource linker and problem solver. The list which follows contains the activities and/or tactics available to the linker:

Action Research	Network Building
Authentic Feedback	Opinion Leadership Utilization
Brainstorming	Overlapping Groups
Change Agent; External	Packaging for Diffusion
Change Agent; Internal	Prestige Suggestion
Collaborative Action Inquiry	Problem Solving
Confrontation	Product Development
Consultation	R&D Unit
Derivation Conference	R,D,&D
Diffusion, Natural	Reflection
Experimental Demonstration	Research Evaluation
Fait Accompli	Role Playing
Financial Support	Rotation of Roles
Force Field Analysis	Sensitivity Training Group
Group Ovservation/Process	Successive Approximation
Human Relations Laboratory	Survey Feedback
Inter-organizational Visiting	System Self-Renewal
Leadership Change	Systems Analysis
Legislated Change	Temporary Systems
Linkage	Training
Mass Media Dissemination	Translation
Multiple Media Approaches	User Need Surveys

Other discussions of roles and activities can be found in Piele (1975), Sieber, et al. (1972), Louis and Sieber (1976), Hall and Alford (1976), and Todd and Kibler (1975). The latter two sources are particularly useful in this regard as they summarize much of the available research on the topic.

Hall and Alford provide, in addition, lists of some of the "knowns" about characteristics of linkage strategies and about linkers themselves. Characteristics of personal linkers that have been found or assumed to be particularly important include the following:

Number--number of full- and part-time staff.

Personnel Qualifications--training and previous experience.

Personnel Allocations--how staff assignments are made (for example, by region or subject area; in advance or in response to identified needs and interests).

Funding--level of financial support from federal and other sources; funding priorities; allocation of funds over time and across activities/target groups.

Timing/Schedule--pattern of activities over time; balance of schedule and relevance to school year; process by which priorities are set and scheduling decisions are made.

Internal Evaluation--degree to which documentation and assessment activities are conducted; goals and pruposes of evaluation; types of information collected; impact on subsequent activities.

Participant Interactions--context, type and frequency of interactions; extent to which expectations and role perceptions converge or conflict.

Accessibility--perceived availability for assistance (answering questions, providing materials, providing training, visiting adopter sites or receiving visitors, and such).

Proximity--extent to which participants interact primarily with others who are close to them geographically.

Credibility--three aspects of credibility are relevant: competence (perceived expertise, reliability of professional credentials); trustworthiness (perceived sensitivity to needs and interest of others, dependability); an reputation (previous histroy of success or failure).

Organizational Context--influence of the organization within which linker group is located on diffusion activities; ways in which activities are facilititated or hindered.

Complexity--number and functions of separate levels and units included within the Network.

Centralization--extent to which authority rests in a single body; focus of decision-making and identification of any competing groups.

Formality--degree to which activities are governed by rules and specified procedures; scope, activities, and influence of Network Steering Committee.

Compatibility--awareness within the Network of alternative diffusion strategies and organizations; interface with alternative efforts (35-36).

Some of the characteristics of linkage activities and strategies are applicable not only to linkers-i.e., people-- but to other-than-personal-linker media as well.

Type/Kind--content of activity; orientation toward producing cognitive or behavioral change.

Technique/Method--method(s) used to carry out activity (for example, mailout, conference, visit); familiarity or novelty of methods; extent to which methods are standardized or adapted to individual situations.

Media/Channel--mode of delivery or presentation (print, artwork, audiovisual materials, lecture, demonstration); formality of delivery mode; use of existing channels.

Completeness/Extent--level of detail at which information is presented.

Volume--absolute and relative amounts of information conveyed; inclusion of information about entire program or selected components only.

Content Level--extent to which activity focuses on abstract concepts or on concrete, explicit practices.

Target/Scope--intended receivers or target group; extent to which activity is direct toward entire population served or to selected subgroups; specific targets of activity within adopting units.

Cost/Effort--cost and effort associated with preparation/ presentation of activity.

Frequency--time intervals between contacts; repetition of activities.

Sequence--extent to which a standard sequence of activities is used or to which activities are contingent upon results of earlier activities.

Reciprocity/Feedback--use of one-way and two-way communication; activity/passivity of source and target in the process of information exchange; exptent to which diffusion activities occur in response to requests from adopters.

Redundancy--extent to which alternate methods and/or channels exist for conveying the same or similar information; extent to which these methods or channels are used.

Campaign--degree to which activity entails "high pressure" tactics designed to "sell" adopters on programs.

Persistence--extent to which source of initiator makes repeated attempts to convey information or generate a response from recipient; amount of followup.

Sanctions--rewards or sanctions promised or provided (40-41).

LINKER TRAINING

In the past few years the training of linkage agents has become a focus for developmental activity. As the linkage agent concept in education is of recent vintage (though, of course, there is a long tradition of extension agent activity and training in agriculture) this emphasis seems well placed. Major efforts were made by Sieber, et al., (1975, 45-504) to document the level of success of the training programs undertaken in the pilot training project. Havelock (1971) and Mick (1973) have prepared guides for linker training. Piele (1975) provides a useful summary of the literature on training and NIE has had a draft manual prepared for linkers, the "NIE Education Dissemination and Linkage Agent Sourcebook" (1976).

Havelock (1971) suggests twenty-six features that should be incorporated in the linkage agents training program:

(1) Knowledge inputs should be matched with behavorial. Behavioral inputs should be matched with knowledge.

(2) Trainees should have experiences which integrate all their knowledge and skill learnings.
e.g., a) case study reading and analysis
b) case simulation
c) case expectation and direct experience
d) actual case analysis and reporting

(3) Trainees should simulate experience of their future "role set".

(4) Variety of case materials and activities should match variety of experience in roles.

(5) Trainers should be rewarding at all levels.

(6) Training should buid sequentially and logically on itself.

(7) Training should be non-terminal (mechanisms for continuing education should be built in).

(8) Training events should be extended over time in work experience to allow integration into everyday life.

(9) Trainees should be trainers to each other.

(10) Trainees should be self-analysts and evaluators.

(11) Trainees should be contributors to research and development on their role.

(12) Trainees should become a social system.

(13) Trainees should participate in design of own training.

(14) Training should always include knowledge and skills in acquiring more such training.

(15) Training should cover all expected outcomes.

(16) Training should lead to self-actualization of trainee.

(17) Training should lead to feeling of accomplishment by trainee.

(18) Training should lead to enhanced sense of identity of trainee.

(19) Training should lead to greater desire to learn.

(20) Training should lead to greater understanding and concern for the human condition.

(21) Understanding of installation problem should be included in training.

(22) Understanding of rationale for role and larger social context should be included in training.

(23) How to create or acquire role support materials (handbooks, guides, reference, diagnostic, self-evaluation tools, procedures) should be included in training.

(24) Understanding and skill in explaining role to others should be included in training.

(25) Understanding and skill in handling those threatened by and/or attacking the role should be built into training.

(26) Training should lead to social visibility and public recognition of achievement and qualification (degree, certificate, title). (1971, pp. 67-68)

Documentation from the recent NDLP Linkage Topical Conference (March, 1977) may provide a more concise discussion of available linkage training resources and programs. So, too, will the materials being produced by Dr. Bill Ward and associates at Northwest Regional Education Lab.

IMPACT OF LINKAGE

Models, roles, activities and training aside, the crucial question by those who allocate funds is always "What is the effect?" There have as yet been too few evaluations of linkage activities to allow us to answer the question with much confidence, though those results which are available appear supportive.

Herlig (1973) in his study of extension agent activity in Kansas reported that, in general, extension agent activity does make a difference:

(1) Extension agents do not negotiate information requests that score higher in complexity than requests do in areas where there is no agent.
(2) Administrators do submit information requests that score higher in complexity than those submitted by teachers.
(3) Extension agent activity does produce a higher adoption rate than occurs in areas where there is no extension agent activity.
(4) Extension agent activity does produce a higher Utilization Index than occurs in areas where there is no extension agent activity.

Other efforts including Sieber, et al. (1972), Mojkowski and Mellor (1974) and Robinson (1973) also found generally positive results from following linkage strategies.

MANAGING/COORDINATING LINKAGES

As has been frequently the case in the other domains, Sieber, et al., provide some of the more useful guidelines for those who are placed in charge of implementing and then running a linkage program.

(1) There should be one agent for approximately every 300 potential clients. Thus, with a target audience of 300, a typical agent could reach 40 percent of the school personnel in his area in a given year, and conceivably even half.

(2) It would be highly advisable to employ a team of agents for each target area. At least one of the team members should have an administrative background and another a teaching background. This does not mean that each individual should specialize strictly according to either administrators' or teachers' requests, nor should any hierarchical differentiation be apparent within the team.

(3) Agents should be hired who reflect the educational climate or outlook in the area to be served. This will usually mean that they should have past experience as a teacher, administrator or specialist in the target districts.

(4) Former superintendents should not be hired as field agents unless their work will be restricted to the upper levels of administrative clientele.

(5) With regard to personality traits, an individual hired as a field agent should be non-authoritarian, patient with clients who have trouble articulating their need or using information, able to tolerate delay and ultimate frustration in obtaining results, have low need for ego-aggrandizement, and enjoy performing a variety of activities and meeting a wide range of people without a sense of becoming "hassled."

(6) The most effective means of publicizing the program and stimulating requests in all sectors of the educational structure is through informal, interpersonal meetings with potential clients. A general publicity campaign conducted through SEA and intermediate agency newsletters should be used only for purposes of announcing the program, not for stimulating use. Nor should field agents rely solely on mass communication techniques (i.e., large meetings or mass media) in the early stages of program development.

(7) Agents should try to identify "opinion leaders" and "self-starters" within their target districts, and involve these individuals in helping to disseminate new ideas or information to a larger audience than can be reached by the agent alone.

(8) Agents should be willing to try to answer virtually every felt need expressed by prospective clients in the beginning of the service, including personal favors such as acquiring information about the availability of funds for further training. Once access has been established, more serious attempts can be made to stimulate requests for research bearing on local professional problems. Similarly, "diagnosis" should not be attempted until the agent has fully established his credibility with clients or is asked to provide such service.

(9) Field agents should not engage in retrieval on the local level from resources which are duplicated in the retrieval center unless a client is extremely pressed for time.

(10) A half-time secretary-retrieval aide should be made available to each team of agents, providing the team comprises no more than three agents.

(11) Field agents should work with retrieval staff members in determining when techical assistance or consultant help might be useful, but they should also feel free to recommend consultant help on their own.

(12) Field agents should review the materials which are delivered for clients so that they can keep abreast of the different types of information and ideas being dispensed within their area. In dealing with first-time users or with poorly motivated clients, screening of all material should be done. The better or more relevant ideas should be highlighted, while seemingly extraneous material should be omitted.

(13) Follow-up should be practiced with every client. While in most cases this follow-up might be limited to checking on the usefulness of the information, or a possible need for additional data, the agent should always be willing and available to become more involved in problem-solving at the client's request.

(14) Self-renewal structures should be set up at the building level to facilitate the use of the service. Thus, a research committee composed of the principal and several teachers might be established to periodically review and screen the areas in which information is needed. The field agent should try to meet with these committees.

(15) In urban areas there is a need to hire a number of agents because of the large number of potential requesters and also the structure's complexity. Agents should specialize by school level, although not by position of clients (with the possible exception of a full-time agent at the district office level to help specialists and C&I personnel). The urban agent should be given the authority to call upon the technical assistance of local specialists and consultants in the same way that the state retrieval office calls upon the services of the SEA.

(16) Field agents should receive on-site and off-site training for at least a year in the beginning of their work (591-593).

VIII. STATE EVALUATION PRACTICES

Very little has been written in this area concerning the State Capacity Building Projects. This is to be expected: evaluation is a new field and the State Dissemination Capacity Building Projects are even newer. This is not to say that nothing has been written; on the contrary, exhortations about the need for evaluation are frequent. It is just that little evaluation *per se* has been conducted.

Sieber, *et al*. (1975) is virtually the only extant evaluation relevant here. Emrick (1976) provides an evaluation design for NDN but, as there are significant differences between the two programs, the NDN design is only marginally applicable. The states have been more concerned about evaluation as an abstraction than they have been about doing evaluation as an activity. Although a few have made some efforts, none has moved sufficiently far to provide much guidance to NTS. It should be noted that NTS has what is undoubtedly the most complete collection of the projects' evaluation instrumentation available. Although interesting and occasionally useful -- especially in the area of user "feedback" forms -- for the most part the instruments are relatively unsophisticated and are poorly designed for their stated purposes. One project, Illinois, did contract for a third-party evaluation prior to FY 1976; this report by Market Opinion Research concentrated on process variables and management arrangements and recommended planning as the chief ingredient for the near future. As can be seen in the NTS report on the Cohort I States (forthcoming) Illinois did indeed take that advice.

The IPOD (1976) authors are among those who have argued the need for evaluation, especially to help manage the dissemination system within a state:

> "As with any system, management of the dissemination system should evolve in terms of local characteristics, philosophy, and anticipations. Feedback and evaluation activities should be employed in order to adjust the operation of the system for better performance. Clearly stated objectives for each activity facilitate such evaluation as well as the on-going monitoring of the system" (49).

The IPOD Report further argues that the products of dissemination activities, the promising programs and practices, that are being delivered, need to be evaluated as well:

> "A critical activity of the R&D function is that relating to the validation of the outcomes of these newly developed "solutions" to priority needs. More and more local districts and state education agencies are demanding that new programs be field tested and documented before widespread dissemination is undertaken. In many states, principally through federal motivation, the documentation of programs in terms of costs, effectiveness, and training needs has become a major activity. While this activity has been limited to a few federal programs, the practice appears to be capable of spreading to all federal programs and to state and locally developed products as well. As the number of programs and practices which have such documentation grows, SEA's will be able to offer more and more effective program alternatives to local school districts" (50).

They conclude their report with the suggestion that "dissemination activities be regularly reevaluated in light of the state-of-the-art and recommendations for improvements be made" (55).

Sieber and his associates (1972) provide the only general model by which projects could be evaluated. The chief drawback to their approach is that of resources: with twenty-four states in the program now, the type of extended, comparative case study used by them is simply not practical. This is not to say that their approach is of little value, far from it. In fact, the instrumenta-

tion they developed is still generally the best available. Any major evaluation of these projects would be remiss not to consider the methodologies Sieber and his colleagues developed. But again the caveat remains -- their approach was excellent for an exploratory study of three states; for evaluating twenty-four projects, simpler, less labor-intensive techniques are necessary.

IX. CLIENTS

Even though there has been a large amount written about those who are the ultimate targets of the Capacity Building Projects, very little of it has concerned the client in general terms. Most has been written from one or another of two related perspectives, that of the distinctions between the user and non-user and that of the use made of the information by the client. In this domain, therefore, setting boundaries of inclusion is more than usually difficult. Only general treatments of clients will be considered here, that is, those broad statements about the characteristics of teachers, administrators, schools, districts and communities that neither seek to delimit nor explain but merely to describe. Although somewhat artificial as a distinction, the characteristics of the people and the characteristics of their organizations are sufficiently precise to organize this literature. Given a large written base from which to work the following distinctions might prove worthwhile: staff by position and level, organizations by formality and style, and the relationships among the cells in this matrix.

PERSONAL CHARACTERISTICS

Interestingly, the picture drawn of the educational practitioner is a not very flattering one. The consensual perception, especially toward teachers, is one of conservatism, resistance and hostility to change, satisfaction with the status quo, willingness to accept only psuedo-changes, and so on. (For examples of these

sorts of observations, see Van Wyck, 1971, 90; Miller, 1974, 485; Engel, 1974, 458; Steere, 1972, 63; and Heichberger, 1974, 215). This is not to say that these authors despair; on the contrary, nearly all are willing to offer solutions which can serve to overcome the inertion. (As an observation, it certainly seems unlikely that anyone perceiving such a problem will be published without also proposing a solution. For that matter, undoubtedly those that do not perceive a problem in this area are simply not likely to write at all).

The explanations offered for this inertia are more important in this section than the solutions. These explanations fall into two major categories, those seeing resistance to change as somehow inherent and those that place situational barriers and disincentives as the major causes. Heichberger, Van Wyck and Engel fall into the first category with only Heichberger offering support for his position. Miller and Spuck (1974, 18-34) argue from the second perspective, with Spuck offering the best evidence. Certainly no reason exists to presume these two positions are opposite; to be sure, one would expect incentives and desires for stability to be reinforcing. It may be significant that the socialization argument, that is that teachers are taught not to seek change by their own training, is curiously absent from the literature received.

Hood and Blackwell (1976, Vol. II, 14) offer a description of practitioners' and administrators' information needs relevant here; by inference one can gain some insight from these descriptions into the characteristics of the personnel themselves:

> "School Practice Oriented Groups. In general it seems that the ISA (Intermediate Service Agency) staff has usefulness preferences which are close to those of teachers,

principals, and "other" practitioner staff. High preferences among these groups are: classroom and curriculum materials, solutions to common educational problems, regularly mailed information of interest, educational trends and issues, and educational news and current events. They are also more receptive to receiving help in trying out new ideas and, at least relative to other audiences, see more use in information agent service visits. Like nearly all other groups, they see much use in information on the evaluation of educational programs and practices. They are much less interested in educational statistics, or lists of experts in education (except for ISA staff).

Administrators and Staffs of Education Agencies. The administration audiences (LEA, ISA, SEA) and the higher education audiences (chiefs, institutional researchers, social scientists, and education faculty) tend to mirror the practitioners to some degree in their preferences for more popular items including: current events, solutions to common educational problems, and evaluation of programs and practices. However, these groups place relatively more value than practitioners and other LEA subaudiences on education-related statistics and education-related legislation, and less emphasis on classroom and curriculum materials" (X-14).

ORGANIZATIONAL CHARACTERISTICS

As above, the inclusion of only descriptive materials drastically limits the literature in this area. Again, most authors find the organizations within which practitioners work to be resistant to change and status quo oriented. For examples see Abbott (1969, 168), Granito (1972, 64-65), Becker (1973, 193-196), Shane (1973, 508), Trump (1974, 22-24), Giaquinta (1975, 38-58), Sieber (1976, 4-10), among many others. The conservative bias here is not surprising. As suggested in section V, Institutionalization, most discussions of organizational change highlight the barriers against change rather than the tendencies toward it. The reader is invited to review the discussion in section V for additional information concerning the problems inherent in bureaucratic reform efforts.

Measures of "organizational climate," that is, the "personality" of the organization (Hughes, 1968, 17) are frequently used to describe educational organizations. In this, one instrument, the Organizational Climate Descriptive Questionnaire (OCDQ), developed by Halpin and Croft (1963) is the most common. For discussions of, or relevant to, OCDQ see Doak (1970, 367-371), Hughes (1968, 16-28), and Wood (1973, 516-518). As used by Hughes, organizational climate consists of two dimensions: leader behavior and group behavior. The general concept derives from Milton Rokeach's The Open and Closed Mind (1960) with the assumption that organizations as well as people can be arranged along an open-closed continuum. In general, the strengths of this construct are that a common measure can be used to compare organizations or levels within systems and as an aid to location of the barriers to change in terms of roles, organizational goals, and individual behavior. Its weaknesses include a neglect of external influences, those exogenous variables which tend to structure the organization's environment. To be sure, the OCDQ treats organizations as if they existed sui generis, not as a part of a much larger, complex network. However, by allowing comparisons across organizations, or between organizational levels, "organizational climate" is a useful explanatory tool for examining the differences between innovative and non-innovative organizations, that is, between users and non-users.

CREATING CLIENT AWARENESS

Influenced, undoubtedly, by the parsimony and rationality of the Rogers Social Interaction/Diffusion model (see the Introduction),

many authors have suggested the importance of first getting the clients' attention. When this is accomplished, then the rest of the adoption process should flow neatly. Regardless of the validity of that particular model's assumptions when applied to educational KPU, the logic of creating awareness as a first step seems unassailable. Although a number of authors have discussed the need to develop awareness fewer have actually detailed steps by which it can be done. Of these, the most complete discussions are in Todd and Kibler (1975, 17-20), Piele (1975, 46-52), the NIE "Education and Dissemination and Linkage Agent Sourcebook" (1976), and Sieber, et al. (1975, 65-96). Virtually all make the same points: the client's role in the organization must be understood, the agent should be able to develop rapport, and it is necessary to be able to help clients define their problems.

The media through which awareness can be developed are many and varied. Most of the reviewed discussions focus on the activities of the human linkage agent but Piele, Sieber, et al., and Havelock, et al. (1973) discuss the utilization of other media as well. One recommendation of Sieber, et al., reported in Section VII, is especially relevant and shall therefore, be repeated here:

> "The most effective means of publicizing the program and stimulating requests in all sectors of the educational structure is through informal, interpersonal meetings with potential clients. A general publicity campaign conducted through SEA and intermediate agency newsletters should be used only for purposes of announcing the program, not for stimulating use. Nor should field agents rely solely on mass communication techniques (i.e., large meetings or mass media) in the early stages of program development. When the agent has been in operation long enough to have followed through on several successful implementations of retrieved information, he should then use mass media techniques to spread knowledge of the program's effectiveness. These techniques might include a short film about the service which

employs satisfied clients as exemplars, or newsletters describing specific programs and requests recently handled by the agent. The first round of publicity visits should be kept separate from efforts to identify or diagnose problems, unless the personnel being contacted themselves initiate a request. Separation of the processes of publicizing and negotiating requests will avoid the appearance of pressuring prospective clients to adopt a new and seemingly untried service" (592).

X. USERS AND NON-USERS

Presuming clients do become informed about the services provided by the dissemination project, the question then becomes one of determining why some choose to utilize the services and others do not. Three sets of variables chiefly have been used in attempts to explain this distinction: characteristics of the individual, characteristics of the organization, and characteristics of the information (or innovation) itself. One other set has received some attention as well, characteristics of the linkage providing the information. As the latter was discussed in Section VII, it will be neglected here. Good general discussions of this domain can be found in Corwin (1975), Leithwood and Russell (1973), Sieber (1976), Todd and Kibler (1975, Shane (1973), and Berman, et al. (1975).

INDIVIDUAL CHARACTERISTICS

Most of the material cited under the same subheading in Section IX could be repeated here as well. Taking the general perception by the authors of a bias toward the status quo among potential users as a "given" (though a largely unsubstantiated one), it is necessary to determine why some clients are less so than others. The arguments are basically parallel; some are more psychologically prepared for change and, in some cases, the individual's environment provides more incentives for change-oriented or information seeking behavior.

Corwin (1975, 1-37) provides one of the few empirically-based discussions on the difference between users and non-users. Among others, he found that the educational background and experience of teachers, the proportion of teachers who were male, and the proportion belonging to the AFT to be associated with a tendency to embrace new programs. Steere (1972, 63) suggests that one main barrier to change within individuals is the experience with change during the "fad-oriented" 1960s. That is, ex-innovators, either from being burned previously or from being successful, are unlikely to actively promote new change. The first does not want to risk his status again, the second does not want to risk his new, higher status at all.

Svoboda and Wolfe (1974, 62-63), among many others, offer the suggestion that the "desire for change" is an absolute necessity; this desire is usually the result of conflict. By inference then, teachers and other educational practitioners must be placed in a conflicted situation before they will become users. The problem here, of course, is that conflict may also lead to desires to protect ones own position.

Eicholz (1963, 264-269) provides a "theory of rejection" which, by its obverse, would seem to offer a theory of acceptance as well. In explicit parallel to Rogers' five steps of acceptance--awareness, interest, evaluation, trial, and adoption--he suggests five steps of rejection--awareness, disinterest, denial, trial, and rejection. Rejection itself takes the form of one or more reasons including: (1) ignorance (lack of knowledge), (2) suspended judgment (lack of logically compelling information), (3) situational (lack of materially

compelling information, (4) personal (lack of psychologically compelling information sufficient to overcome anxieties about abilities, other commitments, or understanding of role), and (5) experimental (the client tried it and was not satisfied). Any of these, with the possible exception of the last, can be overcome. The important point is that rejection can occur for a number of reasons; any effort to get practitioners to change must recognize that.

ORGANIZATIONAL CHARACTERISTICS

The subsections on changes in bureaucracies in Section V and on the characteristics of organizations in general in Section IX highlight a number of reasons for failures of organizations to change. Among the works cited there, Anthony Downs (1967, 202) provided examples of the situations in which organizations were likely to be change-oriented. In addition to the authors mentioned in those discussions, others have specifically attempted to determine the structural and personnel characteristics of organizations that make them more or less likely to be users.

Corwin (1975, 1-37) found that the number of cooperative educational programs carried out in and with the community, the number of federal programs in the school, the size of the city in which the school existed and the size of the school itself were all directly related to a tendency for the school to be innovative. This is hardly surprising, with the exception of the latter two variables, the others are also measures of innovativeness. In effect, Corwin is saying

that schools which are likely to be innovative are schools which have been innovative.

Hearn (1972, 359-360) reports that educational organizations are more likely to accept change when they are located in a liberal, high education and income level community with a relatively homogenous and cosmopolitan population and possessing relatively young staffs. Even in such cases, information use and change will be more likely to occur if the change is suggested during periods of fiscal adjustments, personnel changes, media "crusades," or such crises as teacher strikes.

The literature on organizational climate (Hughes, 1968), Doak (19760), and Wood (1973) generally emphasizes the need for "openness"--the more "open" the organization, the less likely the organization will be a non-user. Hughes further found that "open" school systems were characterized by a slightly greater willingness of the community to expand wealth on the schools; at the same time, community "wealth", per se, was only marginally related. It would seem that organizational climate as a construct may only be tapping community support.

Other factors that could be included here, such as incentives and size of the organization, were discussed in previous sections of this essay.

CHARACTERISTICS OF THE INNOVATION

A client is more likely to step into the role of user if the innovation appears acceptable, worthwhile, the change will not cause the innovator undue trouble and the source is trustworthy and credible; generally speaking those are

the central conclusions that can be drawn from a review of the literature covering innovations. Good discussions of these factors can be found in Moore and Mizuba (1969), Murray (1970, Helsel (1972), Fliegel and Kivlin (1966), Orlosky and Smith (1972), Piele (1975) Hall and Alford (1976), and Zaltman and Lin (1971).

Rather than redundantly report each author's own conclusions as to the relative importance of one factor over another (none of which are conclusive), the following list of important characteristics will be offered without further comment:

> Novelty--the absolute and relative degrees to which an innovation is new and different rather than a minor variation of existing practices.
>
> Compatibility--consistency or continuity of the innovation with prevailing contemporary lay and professional assumptions, priorities, role definitions, and such.
>
> Relevance--the extent to which the relationship of the innovation to student benefits is perceived as direct, apparent, and so on (a major component of "relative advantage," concept developed by Rogers and Shoemaker and used widely in the research literature).
>
> Acceptability--extent to which the innovation is likely to arouse resistance from teachers, administrators, community; extent to which aspects of the innovation are considered controversial.
>
> Complexity--scope/comprehensiveness of the innovation; extent to which it requires numerous changes and affects multiple curriculum areas or functions of the school.
>
> Nature--content or subject matter of the innovation.
>
> Target Group/Purpose--intended target group and goal (for example, to "close gaps" between low-achieving students and their peers; to maximize individual growth).

Cost--absolute and relative expenditures of time, money, and energy required; typically, costs associated with start-up or original installation and with continued operation of the innovation are both considered.

Concreteness/Salience--visibility, tangibility of the innovation; degree to which it is based on materials, technology, and physical objects rather than ideas or concepts.

Centrality--extent to which the innovation affects major functions of the adopting institution rather than peripheral areas.

Locus of Implementation--level at which the innovation is installed and operated (classroom, school, or district); extent to which adoption/implementation require collaboration and cooperation (that is, the innovation cannot be adopted and operated by a single, autonomous individual).

Completeness--degree to which an innovation is a complete entity, requiring no additional components for implementation.

Discreteness--extent to which the innovation operates in the classroom/school/district; extent to which it constitutes an "add-on" rather than a change in the overall operating system.

Interdependence/Divisibility--degree to which components of an innovation can function independently; extent to which changes in one aspect will affect other aspects.

Integrity/Adaptability--degree to which an innovation can be modified without losing its essential character (includes flexibility of content, target group, locus of implementation, and the like).

Time Frame/Phasing--length of time required for trial, implementation, refinement, incorporation, and detection of results; incorporates the notion of "trialability" (feasibility of implementation on a limited basis before a full commitment).

Popularity--popular image of the innovation type; extent to which innovation reflects currently popoular ideas, practices, materials, and such.

Repute--reputation and credibility of the innovation, based on claims of success from developers, early adopters, and so on. (Hall and Alford, 1976, 29-31).

XI. USER SATISFACTION AND INFORMATION UTILIZATION

This final domain is one that has only recently received much attention. At least three reasons can be offered for this: (1) under the influence of the Social Interaction/ Diffusion model researchers were not led beyond a concern with adoption itself, (2) until recently, education researchers were not confronted by large piles of innovations that were adopted and then discarded, and (3) as research in education KPU has continued there has been an increasing tendency to pay grudging respect to the common sense of the practitioner. Generally speaking, there is still interest in whether a client adopts or rejects, but there is now also interest in what the adopter does after the adoption and, ultimately, what the impact of the adoption happens to be.

INFORMATION UTILIZATION

Hood and Blackwell (1976, Vol. II) discuss a number of topics of concern here, among them the usefulness of various information sources, problems in using educational information, and the types of information that would be most useful. It should be noted that the main focus of their effort was the study of information needs but, nonetheless, some of their conclusions are quite appropriate here:

> (1) Usefulness and frequency of use of information are related to the role of the client. Teachers report that texts and reference books, curriculum materials, face to face discussions, personal libraries and personal files were the most useful and most frequently accessed sources. Technical reports, abstracts, and phone contacts with people in other organizations were least useful and least used. As one's position within a school systems hierarcy increases in level informal, especially face to face, sources are more frequently used (V-4).

(2) Teachers are more likely than others in the educational community to report that "lack of time, funds, or personnel to search for information" are problems for them in information use; school principals, LEA, and SEA administrators are somewhat more prone to complain about scarce or non-existent information (VIII-4).

(3) The type of material that educational personnel perceive that "would be most useful" also varies by role. Teachers prefer pragmatic material such as classroom and curriculum materials, solutions to common educational problems, and information about education trends, issues, and current events. Principals, on the other hand, find case studies and evaluation reports to be desirable as well (X-5).

If the assumption holds that "usefulness" and "utilization" are strongly related, then the above conclusions suggest a number of important points. Among these the single most important is that one must provide information in a form that is likely to be perceived as useful if that information is to have much effect.

Sieber, et al. (1972) asked their respondents to "Please describe in as much detail as possible the actual use you made of the information or assistance". The responses were then coded into five categories: (1) a specific practice or program was implemented; (2) vague response indicating that some implementation occurred; (3) used for planning or proposal writing; (4) the material was read, but no specific use was made of it; and (5) negative comment about the material. Combining the responses the authors gained from the three states into one general set, the following "use" percentages can be found for each category:

Category	Percent Reporting Use
1	9%
2	10%
3	22%
4	49%
5	9%

N=536
(adapted from p. 519)

Although it is unclear what a "good" rate of use should should look like, the above gives at least an indication of what it does look like. Categories 1-3, when summed, indicate that over 40% of those responding got some use from the information.

It is also possible to delineate the meaning of "adoption" itself; Hall and Alford (1976) present the following "dimensions or phases of adoption identified in the literature":

> Awareness--the source, type, extent, completeness, and flow pattern of information about an innovation in an adoption setting.
>
> Adoption Decision--includes such aspects of the choice to try an innovation as: participants involved, strategy used in reaching consensus, commitments made, scope, and impact.
>
> Implementation--includes such aspects of the initial period of use of an innovation as: type and extent of trial of the innovation; nature, scope, centrality, pattern, and degree of change introduced by the innovation; and nature and scope of adaptation or modification of the innovation.
>
> Incorporation--the length of time and degree of completeness for an innovation to become a standard feature of an adoption setting.
>
> Evaluation--the formal or informal determination of the extent to which an innovation meets staff expectations, is cost-effective, introduces reasonable changes, is feasible to implement, and, in general, constitutes an improvement over previous practice.
>
> Secondary Diffusion--the extent to which an innovation spreads from one adoption setting to others (56-57).

USER SATISFACTION

In this review of the literature only two measures of user satisfaction, per se, were found. (Other measures are

available but have been discussed either in the previous sub-section or in Sections IX and X.) These two have been mentioned by a number of authors, but Sieber, et al. (1972) present them most clearly: "(1) plans to use the service again, and (2) recommendation of the service to others" (554). A sense of either or both of those can be easily ascertained by questionnaire.

NATIONAL TESTING SERVICE, INC.
1905 Chapel Hill Road
Durham, North Carolina 27707

APPENDICES

TO THE

LITERATURE REVIEW

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